Report on the outcomes of a presentation and participation - Young Researcher and Innovator Conference[1]

Action number: COST Action CA21126

Grantee name: Eleni Nikoli

Conference Details

Conference title: 40th International Winterschool on Electronic Properties of Novel Materials (IWEPNM2025)

Conference web-page: https://iwepnm.org/home

Conference venue[2]: hotel Sonnalp, Kirchberg in Tirol, Austria

Conference start and end date: 08/03/2025 to 14/03/2025

Accepted contribution details

Title of the presentation: "Electrochemical hydrogen peroxide production by metal-free functionalized graphene featuring electrostatically associated polyacrylate chains.

Type of the presentation: poster

Co-authors: Ioanna K. Sideri, Maria-Lydia Vorvila, Anastasios Stergiou, Martha Kafetzi, Stergios Pispas, Raul Arenal and Nikos Tagmatarchis

Other details of the presentation: Poster session III

Outcome of the conference participation

Participating in the 40th International Winterschool on Electronic Properties of Novel Materials (IWEPNM2025) provided me with an invaluable platform to present my research titled "Electrochemical hydrogen peroxide production by metal-free functionalized graphene featuring electrostatically associated polyacrylate chains." The conference's focus on carbon nanostructures and 2D materials perfectly aligned with my work on graphene-based electrocatalysts for the selective 2-electron oxygen reduction reaction (ORR).

The presentation of my poster attracted significant attention from experts in the field of electrocatalysis and advanced materials. The insightful feedback and constructive questions I received allowed me to further refine my understanding of the role of polyacrylate anions in enhancing the catalytic performance of functionalized graphene. This exchange of ideas was instrumental in identifying new perspectives for optimizing the design of metal-free electrocatalysts.

In addition to the scientific discourse, I had the opportunity to establish meaningful connections with leading researchers and emerging scientists working on related projects. Engaging in discussions with experts in graphene functionalization and electrochemical applications opened avenues for potential collaborations. For instance, I initiated a dialogue with a research group from a renowned European university specializing in advanced

[1] This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.
[2] For an online conference, specify virtual participation; for hybrid conferences, specify whether it is an in-person or virtual participation.

electrochemical characterization techniques. This collaboration could provide deeper insights into the charge transfer mechanisms within my functionalized graphene ensemble.

Moreover, the conference environment fostered interdisciplinary interactions that expanded my network beyond electrocatalysis. I connected with scientists exploring novel 2D materials and their integration into energy storage devices, which aligns with my interest in sustainable energy solutions. These connections are expected to facilitate future joint research initiatives and potential co-authorship in high-impact publications.

Attending IWEPNM2025 also enhanced my visibility within the scientific community. My presentation was well-received, and several attendees expressed interest in my approach to tailoring graphene's surface chemistry for targeted catalytic activity. This recognition has not only boosted my confidence but also positioned me as a promising contributor to the field of metal-free electrocatalysis.

In conclusion, my participation in IWEPNM2025 was a highly rewarding experience. It allowed me to showcase my research, gain valuable feedback, and establish new contacts for future collaborations. These interactions are expected to significantly contribute to the advancement of my current project and pave the way for future scientific endeavors in the field of graphene-based materials.

Acknowledgement of inclusion of necessary supporting documents to claim the grant

I confirm that the following documents have been uploaded on e-COST as an integral part of this report:

- the certificate of conference attendance.

- the programme of the conference or book of abstracts / proceedings indicating the presentation (oral or poster) of the grantee.

- copy of the given presentation (oral or poster).